

UNITED STATES DEPARTMENT OF THE INTERIOR  
NATIONAL PARK SERVICE**NATIONAL REGISTER OF HISTORIC PLACES  
INVENTORY -- NOMINATION FORM**

FOR NPS USE ONLY

RECEIVED

DATE ENTERED

SEE INSTRUCTIONS IN *HOW TO COMPLETE NATIONAL REGISTER FORMS*  
TYPE ALL ENTRIES -- COMPLETE APPLICABLE SECTIONS**1 NAME**~~Historic~~Technical: Laughery Creek Triple Intersection Through-Truss Bridge  
AND/OR COMMON

Laughery Creek Triple Intersection Through-Truss Bridge

**2 LOCATION**

STREET &amp; NUMBER

Spanning Laughery Creek just west of State Route 56

NOT FOR PUBLICATION

CITY, TOWN

Aurora

CONGRESSIONAL DISTRICT

VICINITY OF

STATE

Indiana

CODE  
18

COUNTY

Dearborn &amp; Ohio

CODE

029 &amp; 115

**3 CLASSIFICATION**

## CATEGORY

☐ DISTRICT  
☐ BUILDING(S)  
☒ STRUCTURE  
☐ SITE  
☐ OBJECT

## OWNERSHIP

☒ PUBLIC  
☐ PRIVATE  
☐ BOTH

## PUBLIC ACQUISITION

☐ IN PROCESS  
☐ BEING CONSIDERED

## STATUS

☒ OCCUPIED  
☐ UNOCCUPIED  
☐ WORK IN PROGRESS  
**ACCESSIBLE**  
☐ YES: RESTRICTED  
☒ YES: UNRESTRICTED  
☐ NO

## PRESENT USE

☐ AGRICULTURE  
☐ COMMERCIAL  
☐ EDUCATIONAL  
☐ ENTERTAINMENT  
☐ GOVERNMENT  
☐ INDUSTRIAL  
☐ MILITARY  
☐ MUSEUM  
☐ PARK  
☐ PRIVATE RESIDENCE  
☐ RELIGIOUS  
☐ SCIENTIFIC  
☒ TRANSPORTATION  
☐ OTHER:**4 OWNER OF PROPERTY**

NAME

Commissioners of Dearborn and Ohio Counties, jointly

STREET &amp; NUMBER

County Courthouses

CITY, TOWN

Lawrenceburg and Rising Sun

VICINITY OF

STATE

Indiana

**5 LOCATION OF LEGAL DESCRIPTION**COURTHOUSE,  
REGISTRY OF DEEDS, ETC.

STREET &amp; NUMBER

CITY, TOWN

STATE

**6 REPRESENTATION IN EXISTING SURVEYS**

TITLE

Historic American Engineering Record

DATE

1973-74

☒ FEDERAL ☐ STATE ☐ COUNTY ☐ LOCALDEPOSITORY FOR  
SURVEY RECORDS

Library of Congress

CITY, TOWN

Washington

STATE

D.C.

## DESCRIPTION

CONDITION		CHECK ONE	CHECK ONE
<input type="checkbox"/> EXCELLENT	<input type="checkbox"/> DETERIORATED	<input type="checkbox"/> UNALTERED	<input checked="" type="checkbox"/> ORIGINAL SITE
<input checked="" type="checkbox"/> GOOD	<input type="checkbox"/> RUINS	<input checked="" type="checkbox"/> ALTERED	<input type="checkbox"/> MOVED      DATE _____
<input type="checkbox"/> FAIR	<input type="checkbox"/> UNEXPOSED		

DESCRIBE THE PRESENT AND ORIGINAL (IF KNOWN) PHYSICAL APPEARANCE

The large metal bridge over Laughery Creek, probably constructed of wrought iron, makes use of what is known as a triple intersection truss, sometimes called a triple truss, triple intersection Whipple truss, or triple quadrangular truss. The name comes from the fact that each of the diagonal tension members crosses three panels as it runs from the upper chord to the bottom chord.

The bridge is composed of two lines of parallel trussing which support a roadway 18 ft. wide. The trusses are about 40 ft. deep, span a distance of almost 300 ft., and rest on stone abutments of random ashlar. Their length is divided into 21 panels each measuring 14 ft. 2 in.

Like other metal truss bridges, the Laughery Creek bridge is composed of three basic structural systems working together: the TRUSSES themselves, the UPPER LATERAL SYSTEM, and the FLOOR SYSTEM. The trusses consist of the CHORDS (upper and lower), which take forces due to bending, and the WEB, which takes forces due to shear. The upper lateral system, located in the horizontal plane of the upper chords, takes transverse loads and makes the structure rigid. The floor system supports the deck and transfers live loads to the trusses.

UPPER CHORD: The upper chord, as well as the inclined end posts (which actually are continuations of the upper chord) are built-up members consisting of angle sections joined by web plates to form channel sections; the top flanges of these channel sections, in turn, are connected by a cover plate, while the bottom flanges are connected by small batten strips.

LOWER CHORD: The lower chord is composed of multiple eyebars, pin connected at the panel points. The eyebars increase in number toward the center of the span, where the greatest tensile forces occur. They are arranged in two systems: some cross alternating panels and are placed within the plane of the vertical posts, while others (those that increase in number toward the center) each cross two panels and are placed outside the plane of the posts. Where bars of this second set cross panel points to which they are not connected, they rest on brackets attached to the ends of the floor beams, thus minimizing the deformation of the bars likely to occur as they sag under their own weight.

WEB: The web, that portion of the truss forming the plane between the upper and lower chords, is made up of 18 vertical posts, 18 diagonal tension members, 8 counter rods, and 2 first-panel hangers. The posts are built-up members composed of rolled channel sections joined by bar lacing, the diagonals are eyebars, the counters are small square rods, and the first-panel hangers are angle sections welded corner to corner to form a cruciform cross section. To counteract the tendency of the posts to buckle because of their slenderness and height, a horizontal strut runs between each post, bracing them at mid-height.

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CONTINUATION SHEET

ITEM NUMBER 7

PAGE 2

Description (continued)

UPPER LATERAL SYSTEM: The upper lateral system is composed of latticed struts which run perpendicularly across the bridge joining the upper panel points of the two trusses, and lateral bracing rods which join the panel points diagonally. In addition, sway braces join the two trusses by running between every third post just above mid-height.

FLOOR SYSTEM: The floor beams are suspended by U-shaped hangers from the pin connectors at the lower panel points. They are built-up members of flange angles joined by web plates and covered by flange plates. The depth of the beams increases toward their centers. Lateral bracing rods, running diagonally across the bridge, are bolt connected to the floor beams near their ends. Between the floor beams, I-beam stringers (not original) help support the present concrete roadway.

The bridge is fixed at the southern end and rests on rollers at the northern end. The rollers, however, no longer function, as shown by the warping of the lower chord eyebars in the two southernmost panels of the west truss.

Each portal contains plaques showing the bridge's date, builder, and the names of the county commissioners responsible for its construction, with the north portal showing the Dearborn County commissioners, and the south portal having those for Ohio County.

# SIGNIFICANCE

PERIOD	AREAS OF SIGNIFICANCE -- CHECK AND JUSTIFY BELOW				
<input type="checkbox"/> PREHISTORIC	<input type="checkbox"/> ARCHEOLOGY-PREHISTORIC	<input type="checkbox"/> COMMUNITY PLANNING	<input type="checkbox"/> LANDSCAPE ARCHITECTURE	<input type="checkbox"/> RELIGION	
<input type="checkbox"/> 1400-1499	<input type="checkbox"/> ARCHEOLOGY-HISTORIC	<input type="checkbox"/> CONSERVATION	<input type="checkbox"/> LAW	<input type="checkbox"/> SCIENCE	
<input type="checkbox"/> 1500-1599	<input type="checkbox"/> AGRICULTURE	<input type="checkbox"/> ECONOMICS	<input type="checkbox"/> LITERATURE	<input type="checkbox"/> SCULPTURE	
<input type="checkbox"/> 1600-1699	<input type="checkbox"/> ARCHITECTURE	<input type="checkbox"/> EDUCATION	<input type="checkbox"/> MILITARY	<input type="checkbox"/> SOCIAL/HUMANITARIAN	
<input type="checkbox"/> 1700-1799	<input type="checkbox"/> ART	<input checked="" type="checkbox"/> ENGINEERING	<input type="checkbox"/> MUSIC	<input type="checkbox"/> THEATER	
<input checked="" type="checkbox"/> 1800-1899	<input type="checkbox"/> COMMERCE	<input type="checkbox"/> EXPLORATION/SETTLEMENT	<input type="checkbox"/> PHILOSOPHY	<input type="checkbox"/> TRANSPORTATION	
<input type="checkbox"/> 1900-	<input type="checkbox"/> COMMUNICATIONS	<input type="checkbox"/> INDUSTRY	<input type="checkbox"/> POLITICS/GOVERNMENT	<input type="checkbox"/> OTHER (SPECIFY)	
		<input type="checkbox"/> INVENTION			

SPECIFIC DATES

1878

BUILDER/ARCHITECT

Wrought Iron Bridge Company

## STATEMENT OF SIGNIFICANCE

The Laughery Creek bridge, which dates from 1878, is the oldest known metal bridge surviving in Indiana, as well as the most unusual. It was built by the Wrought Iron Bridge Company of Canton, Ohio, a large bridge manufacturer of the time, which apparently took a great deal of pride in its bridge at Aurora, for it pictured the structure extensively in its advertisements and promotional literature.

The bridge replaced an earlier wooden structure built in 1868, and the abutments date from that time. The unusual triple intersection design probably resulted from three goals: to make the entire crossing with a single span (thus requiring unusually deep trusses), to place the diagonals close to the standard economical inclination of 45°, and to maintain a reasonably short panel length. The design appears to be a variation of the Whipple Truss, common in the late 19 century, in which the diagonals cross two panels instead of three. The Whipple Truss was considered by engineers of the time to be an improvement over the simple Pratt Truss, in which diagonals cross only one panel; and it is reasonable to suppose that the builders of the Laughery Creek bridge assumed that a triple intersection truss would have similar advantages over a Whipple.

Unlike the Whipple, the triple intersection truss was never common in this country, probably because it required more material, more connection points, a greater number of differently sized members, and was confusing to analyze structurally. The greatest interest in the design appears in bridge books of the 1870's, but by the '80's and '90's it apparently was considered obsolete. It is not known how many were built in the United States, but the total cannot have been large. The Laughery Creek bridge, therefore, is not only a rare survivor, it is a rare type to begin with.

## 9 MAJOR BIBLIOGRAPHICAL REFERENCES

Commissioners' Reports, Dearborn County, Vol. 15; Dearborn Co. Courthouse, Lawrenceburg.  
Johnson, John Butler, The Theory and Practice of Modern Framed Structures (New York, 1896).

Lawrenceburg (Ind.) Register, August 15-29, 1878.

Shreve, Samuel H., A Treatise on the Strength of Bridges and Roofs (New York, 1882).

## 10 GEOGRAPHICAL DATA

ACREAGE OF NOMINATED PROPERTY less than 1

UTM REFERENCES

A 1 6 6 8 3 0 1 0 4 3 2 1 4 2 0  
ZONE EASTING NORTHING

B                                               
ZONE EASTING NORTHING

C                                             

D                                             

VERBAL BOUNDARY DESCRIPTION

LIST ALL STATES AND COUNTIES FOR PROPERTIES OVERLAPPING STATE OR COUNTY BOUNDARIES

STATE	CODE	COUNTY	CODE
Indiana	18	Dearborn	029
STATE	CODE	COUNTY	CODE
Indiana	18	Ohio	115

## 11 FORM PREPARED BY

NAME / TITLE

Donald E. Sackheim & Alex P. Gratiot, Historians; Eric N. DeLony, Architect

ORGANIZATION

Historic American Engineering Record

DATE

March, 1975

STREET & NUMBER

National Park Service

TELEPHONE

202-523-5460

CITY OR TOWN

Washington

STATE

D. C.

## 12 STATE HISTORIC PRESERVATION OFFICER CERTIFICATION

THE EVALUATED SIGNIFICANCE OF THIS PROPERTY WITHIN THE STATE IS:

NATIONAL   

STATE x

LOCAL   

As the designated State Historic Preservation Officer for the National Historic Preservation Act of 1966 (Public Law 89-665), I hereby nominate this property for inclusion in the National Register and certify that it has been evaluated according to the criteria and procedures set forth by the National Park Service.

FEDERAL REPRESENTATIVE SIGNATURE

TITLE

DATE

FOR NPS USE ONLY

I HEREBY CERTIFY THAT THIS PROPERTY IS INCLUDED IN THE NATIONAL REGISTER

DATE

DIRECTOR, OFFICE OF ARCHEOLOGY AND HISTORIC PRESERVATION

ATTEST:

DATE

KEEPER OF THE NATIONAL REGISTER